Breast Cancer Prevention Studies

Breast cancer prevention studies are clinical trials that explore ways of reducing the risk, or chance, of developing breast cancer. Prevention studies are usually conducted with healthy women who have not had breast cancer, but have a high risk for this disease. Through such studies, scientists hope to determine what steps are effective in reducing the risk of breast cancer in women of all races and ethnic backgrounds.

Most breast cancer prevention research is based on evidence that the development of this disease is linked to exposure to the hormone estrogen. Many breast cancer prevention studies are testing the effectiveness of drugs called selective estrogen receptor modulators (SERMs). SERMs are drugs that have some estrogen-like properties and some anti-estrogen properties. For example, their estrogen-like properties may help prevent the loss of bone density in postmenopausal women, and may cause some premenopausal women to become more fertile. Their anti-estrogen activity may help reduce the risk of breast cancer by blocking the effects of estrogen on breast tissue.

The Breast Cancer Prevention Trial (BCPT)

The Breast Cancer Prevention Trial (BCPT) was a clinical trial funded by the National Cancer Institute (NCI) and conducted by the National Surgical Adjuvant Breast and Bowel

Project (NSABP). The BCPT was designed to see whether tamoxifen, a SERM, can prevent breast cancer in women who are at an increased risk of developing this disease. The study began recruiting participants in April 1992 and closed enrollment in September 1997. This study involved 13,388 pre- and postmenopausal women at more than 300 centers across the United States and Canada and is one of the largest breast cancer prevention studies to date.

Results of the BCPT, reported in the September 16, 1998, *Journal of the National Cancer Institute*, showed 49 percent fewer diagnoses of invasive breast cancer in women who were randomized to take tamoxifen compared with women who were randomized to take a placebo (an inactive substance that looks the same as, and is administered in the same way as, a drug in a clinical trial). Women on tamoxifen also had 50 percent fewer diagnoses of noninvasive breast tumors, such as ductal or lobular carcinoma in situ. Nine women died of breast cancer, three women in the tamoxifen group and six women in the placebo group.

In the BCPT, most of the side effects associated with tamoxifen were temporary. However, there were some long-term risks, including several serious health problems: endometrial cancer (cancer of the lining of the uterus), pulmonary embolism (blood clot in the lung), deep vein thrombosis (blood clot in a large vein), and possibly stroke. Because of these risks, women taking tamoxifen should be monitored by their doctors for any sign of serious side effects. All BCPT participants have been asked to continue with their followup examinations.

BCPT participants who were randomized to the tamoxifen group and had not completed 5 years of tamoxifen therapy when the study ended were given the opportunity to continue on therapy. Postmenopausal women who had been taking the placebo were invited to participate in another trial, the Study of Tamoxifen and Raloxifene (STAR). (See the following section for a

description of this trial.) Women in the BCPT placebo group also have the option of seeking tamoxifen from their doctor.

The Study of Tamoxifen and Raloxifene (STAR)

The NSABP is conducting the Study of Tamoxifen and Raloxifene, known as STAR, which is seeking about 22,000 participants. STAR will involve postmenopausal women who are at least 35 years old and are at increased risk for developing breast cancer. The study will determine whether raloxifene, another SERM, is also effective in reducing the risk of developing breast cancer in women who have not had the disease, and whether the drug has benefits over tamoxifen, such as fewer side effects. As with tamoxifen, most of the known side effects of raloxifene are temporary, but women taking raloxifene are at increased risk for pulmonary embolism and deep vein thrombosis. Information on STAR is available from the NCI's Cancer Information Service (CIS) at 1–800–4–CANCER (1–800–422–6237), or at the cancerTrials™ Web site at http://cancerTrials.nci.nih.gov/ on the Internet.

Capital Area SERM Study

NCI is conducting the Capital Area SERM Study to evaluate the safety of raloxifene in premenopausal women between the ages of 23 and 47 who are at increased risk for breast cancer. This study is in progress at the National Institutes of Health's Warren Grant Magnuson Clinical Center and the National Naval Medical Center, both in Bethesda, Maryland. Women who are interested in participating in this study or who would like to have additional information may call the NCI Clinical Studies Support Center at 1–888–624–1937.

Other Breast Cancer Prevention Studies

Studies are being conducted with other drugs to determine if they may help to reduce the risk of breast cancer. Also, researchers are looking at the effect of a low-fat diet on breast cancer risk. More information on these studies is available from the CIS at 1–800–4–CANCER (1–800–422–6237).

A paper published in the January 14, 1999, issue of *The New England Journal of Medicine* described a study of women who had undergone surgery to remove their breasts (double mastectomy) because they were at high risk of breast cancer due to a family history of this disease. In this study, prophylactic (preventive) mastectomy was associated with a significant reduction in the number of cases of breast cancer.

NCI Priorities for Breast Cancer Prevention Research

Recognizing the impact of breast cancer on our society, in 1997 the NCI convened a Breast Cancer Progress Review Group of experts and advocates to analyze the NCI's breast cancer research activities and develop recommendations for the future. Based on its assessment of the status of breast cancer research, the review group recommended research priorities to accelerate progress in treating breast cancer and, ultimately, in preventing the disease. In August 1998, the group published its report, *Charting the Course: Priorities for Breast Cancer Research*.

The review group identified key areas that need to be addressed. New strategies are needed to help researchers take discoveries from the laboratory and effectively study them with people. One of the recommendations in the report is that NCI devote more funding to prevention research and increase the number of high-quality prevention studies. It is also important to

encourage participation in studies, and seek suggestions about the types of studies in which women would be willing to participate. In addition, the review group recommended that researchers focus on increasing minority participation in prevention studies.

Estimating Breast Cancer Risk

No one knows why some women develop breast cancer and others do not. However, it is clear that breast cancer occurs more often in older women, and researchers have identified other risk factors that increase a woman's chance of getting the disease. Still, most women who develop breast cancer have no known risk factors (other than growing older), and most women who have known risk factors do not get breast cancer.

Scientists at NCI and the NSABP have developed a computer program called the Breast Cancer Risk Assessment Tool. This tool can help women and their health care providers estimate a woman's chances of developing breast cancer based on several recognized risk factors. The Breast Cancer Risk Assessment Tool also provides information on tamoxifen. A copy of the computer program may be ordered by calling NCI's Cancer Information Service (CIS) at 1–800–4–CANCER (1–800–422–6237), or from NCI's cancerTrials™ Web site at http://cancerTrials.nci.nih.gov/ on the Internet.

Doctors generally suggest that high-risk women be closely monitored and have regular medical checkups so that, if breast cancer develops, it is likely to be detected at an early stage. These women may also consider participating in prevention studies, taking tamoxifen, or undergoing preventive mastectomy. The decision is an individual one. With any medical procedure or intervention, both the benefits and the risks of the therapy must be considered. The balance of these factors will vary depending on a woman's personal and family health history and

how she weighs the benefits and risks. Women who are considering taking steps to reduce the risk of breast cancer should discuss their personal risk factors with their doctor.

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Sources of National Cancer Institute Information

Cancer Information Service

Toll-free: 1–800–4–CANCER (1–800–422–6237)
TTY (for deaf and hard of hearing callers): 1–800–332–8615

NCI Online

Internet

Use http://www.cancer.gov to reach NCI's Web site.

CancerMail Service

To obtain a contents list, send e-mail to cancermail@icicc.nci.nih.gov with the word "help" in the body of the message.

CancerFax® fax on demand service

Dial 301–402–5874 and listen to recorded instructions.

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